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| **Patterns on Number Lines**  \*Lesson is adapted from activities in *ThinkMath!,* Harcourt School Publishers, 2008. |
| **Mathematics, Kindergarten** |
| **Materials:**   * Objects for making patterns: pattern blocks, counters, connecting cubes, etc |
| **TEKS/SEs:**   * K.5 – The student is expected to identify, extend, and create patterns of sounds, physical movement, and concrete objects. * K.6A – use patterns to predict what comes next, including cause-and-effect relationships   **Objective 6 TEKS/SEs (Underlying Processes and Mathematical Tools):**   * K.13A – identify the mathematics in everyday situations * K.13B – solve problems that incorporate understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness * K.13C – select or develop an appropriate problem-solving strategy including drawing a picture, looking for a pattern, systematic guessing and checking, or acting it out in order to solve a problem * K.13D – use tools such as real objects, manipulatives, and technology to solve problems * K.14A – communicate mathematical ideas using objects, words, pictures, numbers, and technology * K.14B – relate everyday language to mathematical language and symbols * K.15 – use logical reasoning; justify thinking using objects, words, pictures, numbers, and technology |
| **Lesson objective(s):**   * + Students will :     - Label a number line from varying starting points     - Label the points on a number line with collections of objects     - Translate patterns on the number line |
| **Differentiation strategies to meet diverse learner needs:**   * Problem- solving, inquiry-approach * Hands-on exploration * Collaboration and discussion |
| **ENGAGEMENT:**   * On the board, draw a line with several evenly spaced dots. Label the first few dots with numbers, and have volunteers label the remaining dots. * Repeat the activity several times. At first, draw three or four dots on the line and label the first dot with a 1. * Then, draw lines with more dots (up to 9).      * Or, label the first dot with a number other than 1.      * Later, draw a line and do not label the first dot. |
| **EXPLORATION**  **Part 1**:   * In addition to labeling a number line with numbers, you might have children label a number line with objects. * You can do this as a silent activity in which you begin the labeling by placing a collection of objects under a dot on the number line and then have students label a different dot on the line by placing or drawing a corresponding number of objects under another dot on the number line. The example (below) uses buttons.     **Part 2**:   * Have students create a pattern of jumps based on a pattern of figures, as well as a pattern of letters.     A B C A B C |
| **EXPLANATION**   * Students will explain their thinking and justify their solutions in groups and in whole-class discussion, as well as with drawings, diagrams, and oral explanations. |
| **ELABORATION**   * Have children work in pairs, taking turns creating a pattern and then repeating it using different objects. Provide materials that are different from the ones used in previous lessons. |
| **EVALUATION**   * Review the patterns students have created.   + *Did most children create a simple repeating pattern, a complex repeating pattern, or a growing pattern?* |